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ABSTRACT

A study compared levels of career maturity between college students with and without learning disabilities and investigated factors associated with the career maturity of college students with learning disabilities. Specifically, the relationship between career maturity of college students with learning disabilities and the following variables was investigated: age, gender, academic achievement (grade point average), educational level, prior work experiences (type and quantity), socioeconomic status, severity of learning disability, and congruence. The sample consisted of 76 students with learning disabilities (all of those students participating in a special program for students with learning disabilities) selected from a public university in northwestern Pennsylvania. A control group of 106 students without learning disabilities was selected to approximate the leaning disabled sample. Following identification of the sample, the Career Development Inventory (CDI) developed by Super et al. and a demographic information form were completed by each student. T-tests and multiple regression analyses were used to analyze the data. Few differences were found between students with and without learning disabilities on measures of career maturity. Different predictors of career maturity for the two groups emerged, however. For learning disabled students, severity of learning disability and quantity of work experience were found to be predictors, accounting for 22 percent of the variance in career maturity. For students without disabilities, academic achievement, type of work experience, quantity of work experience, and gender were found to be predictors, accounting for 23 percent of the variance in career maturity. The study suggested that, because severity of learning disability had the most negative impact on career maturity, students with severe learning disabilities who are headed for college should have more rigorous career intervention starting in high school. (Contains 61 references.) (KC)

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Differences in Career Maturity Between College Students with and Without Learning Disabilities

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Abstract

This study compared levels of career maturity between college students with and without learning disabilities, and investigated factors associated with the career maturity of college students with learning disabilities. Few differences were found between students with and without learning disabilities on measures of career maturity. However, different predictors of career maturity for the two groups emerged. For learning disabled students, severity of learning disability and quantity of work experience were found to be predictors and accounted for 22% of the variance in career maturity. For students without disabilities, academic achievement, type of work experience, quantity of work experience, and gender were found to be predictors and accounted for 23% of the variance in career maturity.

Differences in Career Maturity Between College Students with and Without Learning Disabilities

More than 130,000 students with learning disabilities attend college in this country and the numbers continue to increase (Matthews, Anderson, & Skolnick, 1987). This population has been identified as the fastest growing group of college students with disabilities (Shaw & Norlander, 1986). One reason for the influx of students with learning disabilities into college is Section 504 of the Rehabilitation Act of 1973. This Act required colleges receiving federal funds to provide services and programming to individuals with disabilities. Postsecondary institutions are required by law to make reasonable accommodations to ensure the success of students with disabilities, including those with learning disabilities.

Two prominent definitions of a learning disability have been proposed. Public Law 94-142 defines a specific learning disability as "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations" (Sattler, 1992). The National Joint Committee for Learning Disabilities defines learning disabilities as "a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening,

speaking, reading, writing, reasoning, or mathematical abilities" (Sattler, 1992).

Increasing numbers of those with learning disabilities who are entering college have been found to have special needs related to both academic survival and career development that are often unrecognized and unmet in institutions of higher education (Cordoni, et al. 1982; Mangrum & Strichart, 1984; Rosenthal, 1985; Vogel, 1982). It is generally accepted that academic, social, and cognitive deficits experienced by students with learning disabilities (LD) persist into adulthood. Just as children with learning disabilities experience significant academic and psychological difficulties in school, so do adults with learning disabilities experience difficulty in advanced education and employment contexts (McCue, 1992). These difficulties may occur in a number of areas including academic skills, information processing skills and social/interpersonal functioning.

While there has been considerable research which has addressed career maturity in the general population, little research has focused upon the career maturity of college students with learning disabilities. Even less research has addressed differences in career maturity between college students with and without learning disabilities. The purpose of this study was to a) compare levels of career maturity between college students with and without learning disabilities, and 2) to identify

factors associated with the career maturity of college students with learning disabilities. Specifically, the relationship between age, gender, academic achievement (grade point average), educational level, prior work experiences (type/quantity), severity of learning disability, congruence between personality and expressed career choice, socioeconomic status; and career maturity of college students with learning disabilities was investigated.

Correlates of Career Maturity and Implications for College Students with Learning Disabilities

Much of the research which identifies factors associated with career maturity has clear implications for college students with learning disabilities. This research is briefly reviewed here.

Socioeconomic Status

Socioeconomic status (SES) is generally viewed as significantly related to career maturity. Higher SES had a negative effect on aspirations of black and white male high school students, and a positive effect on aspirations of females (McNair & Brown, 1983). Parental influence and SES interacted with career aspirations with parental influence having a greater impact on young men.

King (1989, 1990) identified opposite group differences

concerning the influence of socioeconomic status on career maturity. For high school girls, SES had a negative direct effect on career maturity. For boys, the direct effect of SES was not significant but there was a tendency for the positive influence of SES on career maturity to be indirect. In her 1990 study, King found that SES had a positive indirect effect on career maturity in a group of students without hearing impairments, and a negative direct effect in the hearing impaired group. SES had a significant positive indirect effect on achievement in the hearing group. In both studies, SES had direct effects on parental aspirations, which were in turn, significantly correlated with career maturity.

The variables of socioeconomic status, parental influence, and self esteem have been found to predict career choice attitudes differentially among black, white, and Native American high school students (Lee, 1984), and in high school students with interest and ability in science and math (Lee, 1986). Ansell (1970) found that differences in career maturity among black and white high school students could be attributed to socioeconomic status rather than race.

Age

Many studies have suggested that career maturity increases with age. A study by Healy, O Shea, and Crook (1985) explored whether career attitudes are a function of age and whether

persons with more mature career attitudes earn higher GPAs, have higher level jobs, and experience more stable employment in college. Results suggested that career attitudes correlate positively with age, GPA, occupational level of one s college job, and months employed during college. King (1989), in her search for basic causal patterns of differential career development for male and female adolescents, found that age had a significant positive direct effect on career maturity for both boys and girls, indicating that older participants tended to obtain higher career maturity scores when all other variables in the model were held constant. In a later study, when she began to establish an empirical base for comparing the development of career maturity in disabled (hearing impaired) and able bodied adolescents, King (1990) found that the older students in both groups had higher career maturity. Additionally, career maturity was found to differ between adolescent cancer patients and a control group of healthy adolescents as a function of age (Stern, Norman, & Zevon, 1991).

Educational Level

Studies of high school students (Neville & Super, 1988), college students (McCaffrey, 1984), and foreign students (Achebe, 1982) have all indicated positive relationships between educational level and career maturity. Additionally, results of discriminant analysis comparing students in the four college

years (freshmen through senior) indicated a steady increase in means from freshmen (75.46) to seniors (90.03), consistent with expectations. Three studies, one of Native Americans (West, 1988), one of community college students (Smith, 1987), and another of ninth and eleventh graders (Post-Kammer, 1987), however, failed to support increases in career maturity through educational progression.

Academic Achievement

Studies of the relationships between academic achievement and career maturity have demonstrated mixed results. West (1988) found a significant positive correlation between career maturity and grade point average (GPA) in college students. However, Smith's 1987 study of community college students failed to demonstrate correlations between career maturity and measures of intelligence or school achievement.

Gender

Several studies (King, 1989; Bernardelli, DeStefano, & Dumont, 1983) have shown that the development of career maturity differs for males and females, if only in subtle ways. A girl's own sense of control over events in her life, coupled with a cohesive family that provides a variety of cultural opportunities is important for the development of career maturity. For boys, the process has more to do with chronological age, internal locus

of control and, to a lesser extent, family cohesion and parental aspirations. Females at the university level have been shown to be more committed to home and work than males (Nevill & Super, 1988).

Relatedly, Post-Kammer (1987) found that work values influence career maturity. Females exhibited greater career maturity on the Involvement and Independence scales, and males on the Commitment scale of the Career Maturity Inventory (CMI). Work values and career maturity differ according to gender to a greater extent than according to grade level.

The norming sample for the CDI-College and University form demonstrated female means that were significantly higher than those for males at all years except the junior year. The functions that discriminated best were essentially cognitive (Decision Making, World of Work). Females tended to have higher scores on these cognitive scales than males (CDI Technical Manual, 1984). However, other research refutes the assumption that career maturity rates differ for males and females. In a study of undergraduate and graduate college students, McCaffrey, et al. (1984) concluded that the same career related decisions were experienced by males and females, and that there was no consistent pattern of results regarding sex differences and career maturity in undergraduates.

Work Experience

Students with relevant career experience, defined as any paid or non-paid experience involving activities similar to the activities involved in the chosen career/occupation, demonstrate higher levels of career maturity than those without such experience (Magee & Pumfrey, 1986; Nelsen, 1990). Because of their social and cognitive deficits, students with learning disabilities may not have the same opportunity as their peers to participate in work experiences prior to and during college, and more importantly may not receive the same benefit from these experiences as their peers.

Career Maturity of College Students with Learning Disabilities

Career maturity is a developmental process that presents unique difficulties for persons with learning disabilities (Alley, Deshler, Clark, Schumaker, & Warner, 1983; Hallahan, Gajar, Cohen, & Tarver, 1978; Hershenson, 1984; Rosenthal, 1985; Tollefson et al., 1980). Unfortunately, little research has been conducted which specifically focuses on the career maturity of college students with learning disabilities. Research that has been conducted suggests that various interactions and activities that facilitate career maturity, such as the work routines of childhood and observation and imitation of the work routines of family members, are complicated by several factors specifically

related to learning disabilities. For example, in early childhood, persons with learning disabilities may have unique difficulties establishing routines of all kinds as well as accurately observing and effectively imitating work habits of role models (Kronick, 1981; Siegel, 1974). Also, persons with learning disabilities have problems processing information correctly (Zinkus, 1979) and may find facts about the world of work to which they have been exposed in texts, lectures and literature to be both confusing and overwhelming. Persons with learning disabilities have been found to be passive learners who then might not engage in exploratory activities such as part time jobs or extracurricular activities (Alley et al., 1983). Likewise, they often have low self esteem, identity problems, and suffer from "learned helplessness" (Rosenthal, 1985; Watts & Cushion, 1982). As a result, the ability to self assess abilities, deficits, interests and values is often impaired, and decision making of all types, including career decision making, becomes a difficult and problematic process.

In reviewing the test items most often answered as "immature" by college students with learning disabilities, the category of "orientation to career choice" appeared to be the most problematic. This category refers to the degree to which "you are aware of what needs to be done to make a career choice." LD college students who were undecided about a career or were decided about a career field but were unable to specify an

occupation within that field fell below the 25th percentile of the CMI-AS norms in their career-decision making attitudes (Biller, 1988). Crites (1978) has stated that those below the 25th percentile can be considered delayed or impaired in their career development.

In summary, while there has been little research which has specifically focused upon the career maturity of college students with learning disabilities, the research which has been conducted suggests that this population may experience lower levels of career maturity than the general population. Additionally, research on career maturity with the general population has identified factors which seem to be associated with lower levels of career maturity (ie. low self esteem, external locus of control, male gender, low GPA). In that these are often characteristic of students with learning disabilities, this research indirectly suggests that students with learning disabilities may experience lower levels of career maturity than their peers.

Again, the purpose of the current study was to a) compare levels of career maturity between college students with and without learning disabilities, and 2) to identify factors associated with the career maturity of college students with learning disabilities. Specifically, the relationship between age, gender, academic achievement (grade point average), educational level, prior work experiences (type and quantity),

socioeconomic status, severity of learning disability, congruence; and career maturity of college students with learning disabilities was investigated.

Method

Subjects

The sample consisted of 76 students with learning disabilities selected from a public comprehensive university in northwestern Pennsylvania. These students were all of the students who were participating in the university's program for students with learning disabilities who volunteered to be a part of the study. The university has a program for college students with learning disabilities which is nationally recognized and listed in Peterson s Colleges with Programs for Learning Disabled Students. A control group of 106 students without learning disabilities was selected to approximate the learning disabled sample and was chosen using a stratified random sampling of schools, departments, and courses at the university. Table 1 summarizes the characteristics of the participants in the study.

Procedure

Following identification of the sample, the Career Development Inventory (CDI) and a demographic information form were completed by each student. Students with learning disabilities completed the materials during orientation sessions,

or when students reported to the Office for Students with Disabilities for testing accomodations or biweekly monitoring appointments. Students without learning disabilties completed the materials during class time (if permission to do so was provided by the instructor) or on their own time (completed materials were returned during the next class period). A cover letter explaining the purpose of the study accompanied the materials, and verified confidentiality of test results and demographic information. The letter explained that all students in the program for students with learning disabilities, as well as a random sample of non-learning disabled students, were being asked to complete the materials which would probably take about one hour of their time (learning disabled students were offered the assistance of readers if needed).

Instruments

Career Development Inventory

The Career Development Inventory (CDI), authored by Super, Thompson, Lindeman, Jordaan, and Myers (1981), was administered to all participants. The stated purpose of the instrument is to assess career development and vocational or career maturity; to help students make educational and career plans; and to assess readiness to make career decisions. The instrument possesses the following scales: Career Exploration (CE), Career Planning (CP), Decision Making (DM), World of Work Knowledge (WW), and Knowledge

of Preferred Occupation (PO). The CE and CP scales combine to yield a score in Career Development Attitudes (CDA); the DM and WW scales combine to yield a score in Career Development Knowledge (CDK); and all scores are combined to yield a score in Career Orientation Total (COT). According to a review of the instrument by Locke (Kapes and Mastie, 1988), the instrument generally possesses adequate reliability and validity. However, the scales Knowledge of Preferred Occupational Group (.36), World of Work Information (.49), and Decision Making (.51) possess inadequate reliability and were therefore deleted from all analyses.

Demographic Information Form

Each student was asked to complete a confidential demographic information form designed to solicit the following information: date of birth, race, gender, career choice, grade point average, parents' occupation, parent educational level, type of previous work experience, and quantity of previous work experience. For all students with learning disabilities, a measure of severity of learning disability was ascertained based upon the number of instructional accomodations students were receiving. For all students, a measure of congruence was determined by comparing their expressed career choice with scores obtained on the Self Directed Search (SDS), using the Iachan Indices and the manuals for the SDS (Holland, 1985; 1987).

Socioeconomic status was estimated using information on parent's occupation and educational background, and the Blishen scale (Blishen, 1958).

Results

T-Tests and multiple regression analyses were used to analyze the data. Prior to analysis, tests of the assumptions of the statistical tests were completed. Frequency distributions and scatter plots suggested linearity, normality, and equal variance. Additionally, a correlation matrix was analyzed to rule out multicollinearity prior to conducting multiple regression analysis. In order to adjust for the increased error rate of performing multiple t-tests, an alpha level of .01 was used to establish statistical significance in each individual analysis completed. This new significance level was established by dividing the original alpha level (.05) by the number of analyses conducted (5) as suggested by Rosenthal & Rosnow (1991; p. 329). Based on Cohen's computerized Statistical Power Analysis (Cohen & Borenstein, 1989), statistical power was determined to be .63 or better for multiple regression analysis.

In order to compare career maturity between students with and without learning disabilities, a series of t-tests were performed. Specifically, the two groups were compared on the following CDI scales: CDA, CDK, CP, CE, and COT. Using an alpha level of .01 to establish statistical significance, no

significant differences emerged. Table 2 summarizes these analyses.

In order to identify predictors of career maturity for students with and without learning disabilities, two stepwise multiple regression analyses were performed (one for each group). In each analysis, COT was used as the criterion to be predicted. For the LD group, the following variables were included as predictors: socioeconomic status, gender, LD severity, achievement, age, quantity of work experience, type of work experience, congruence, and class in college. Two significant predictors emerged: LD severity and quantity of work experience. Combined, these variables accounted for 22% of the variance in career maturity (R=.47). Table 3 summarizes this analysis.

For students without learning disabilities, the following variables were included as predictors: socioeconomic status, gender, achievement, age, quantity of work experience, type of work experience, congruence, and class in college. Four significant predictors emerged: achievement, type of work experience, quantity of work experience, and gender. Combined, these variables accounted for 26% of the variance in career maturity (R=.51). Table 4 summarizes this analysis.

In that LD severity emerged as a predictor of career maturity among the LD group, additional analyses were conducted with this group. In order to adjust for the small numbers of students in some severity categories, categories were collapsed

and LD students were divided into two groups based on severity (mild/severe). Using a series of t-tests with an adjusted alpha level of .01, students with a mild learning disability were compared with students with a severe learning disability on the total career maturity measure (COT), and the following CDI scales: CDA, CDK, CP, and CE. Results yielded statistically significant differences between the two groups (with severe LDs lower) on COT ($p=.005$), CP ($p=.002$), and CDA ($p=.007$). Additionally, students with a severe learning disability had significantly lower COT scores than did students without a learning disability (84.38 vs. 95.23; $t=2.78$, $p=.007$).

Discussion

While the results of the current study suggest no differences between college students with and without learning disabilities on measures of career maturity, the results do suggest that students with more severe learning disabilities demonstrate lower levels of career maturity than do students with less severe learning disabilities or students without learning disabilities. This may suggest that the career developmental process which is responsible for career maturity may not differ significantly between students without learning disabilities and students with mild learning disabilities as has been inferred in the literature. The results suggest, however, that students with more severe learning disabilities may be hampered

developmentally, and may need additional assistance beyond that required of students without disabilities or students with mild learning disabilities in order to accomplish career development objectives. Perhaps only students with more severe learning disabilities experience the cognitive deficits which render them unable to participate in and profit from the cognitive tasks related to career development. These results offer partial support for the notion that students with severe learning disabilities may have difficulty observing and effectively imitating the work habits of role models, and may be passive learners who do not independently engage in career exploration activities such as part time jobs (Alley et al., 1983; Kronick, 1981; Siegel, 1977).

Results of the study further suggest that different factors are associated with the career maturity of students with and without learning disabilities. For students without disabilities, results are consistent with prior research in suggesting that academic achievement (GPA), gender, and both type and quantity of previous work experiences are predictive of career maturity. For students with learning disabilities, however, only severity of learning disability and quantity of previous work experiences are predictive of career maturity. Thus, it would seem that college-bound students with more severe learning disabilities should be targeted for career-related interventions at the secondary school level, and that these interventions should focus upon providing

these students with a vast array of work-related experiences. School psychologists, counselors, and teachers at the secondary level would do well to encourage these students to participate in internships, career awareness activities, work experience programs and part-time jobs prior to enrollment in college, and to assist them in using these experiences to make career-related decisions.

Several limitations exist with the current study. Certainly, external validity is limited in that the study included students from only one university from one state. In that criteria for admission to learning disability programs and definitions of a learning disability itself vary, results may not be generalizable to other students or other settings. Additionally, the study identified factors which only accounted for 20-25% of the variance in career maturity. Clearly, there are many factors which are unaccounted for in the present study which are associated with the career maturity of students with learning disabilities. Lastly, "severity" of learning disability was operationalized as the number of accommodations students with learning disabilities were afforded. In that the reliability of this assignment could not be assessed by the researchers, and that the number of accomodations afforded a student may not necessarily reflect the severity of their learning disability, use of this data as a measure of severity is in and of itself questionable.

Hence, it would be useful to replicate this study in other settings and with other students. Such additional data would provide minimal normative data which is urgently needed on the population of students with learning disabilities. Additionally, research should include other factors which have been associated with career maturity, including locus of control, family cohesion, and work role salience, in order to assess the importance of these factors in the career maturity of students with learning disabilities. Lastly, additional measures of learning disability "severity" which may be more reliable and valid than that used in the current study should be utilized.

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Table 1

Characteristics of the Sample (Numbers in parentheses refer to students with learning disabilities)

	n	% of Sample
Diagnostic Classification		
Learning Disabled	76	41.8
Non-learning Disabled	106	58.2
Gender		
Male	80(47)	44.0(62)
Female	100(29)	54.9(38)
Age		
Traditional Age	162(69)	89.0(91)
Non-traditional Age	17(7)	9.3(9)
Race		
Majority	141(64)	77.5(84)
Non-majority Race	37(12)	20.3(16)
Class Level in College		
Freshman	106(32)	58.2(42)
Sophomore	36(20)	19.8(26)
Junior	22(15)	12.09(8)
Senior	16(9)	8.79(5)

Table 2

Summary of T-tests: LDs vs Non-LDs

CDI Scale	t	p
CDA	0.37	.71
CDK	2.09	.04
CP	0.97	.33
CE	-0.27	.79
COT	1.21	.23

Table 3

Multiple Regression to Identify Predictors of Career Maturity for Students with Learning Disabilities

Dependent Variable.. COT (Career Orientation Total)

Multiple R	.47
R Square	.22
Adjusted R Square	.20
Standard Error	21.76

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	7916.8	3958.4
Residual	58	27461.8	473.5

F = 8.360 Signif F = .001

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
LD Severity	-5.34	2.34	-.27	-2.28	.026
Work Exp. Quantity	5.99	2.34	.31	2.56	.013
(Constant)	86.10	12.56		6.86	.000

Table 4

Multiple Regression to Identify Predictors of Career Maturity for Students Without Learning Disabilities

Dependent Variable.. COT (Career Orientation Total)

Multiple R	.51
R Square	.26
Adjusted R Square	.22
Standard Error	18.47

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	4	9387.5	2346.9
Residual	77	26272.3	341.2

F = 6.878 Signif F = .000

----------Variables in the Equation----------

Variable	B	SE B	Beta	T	Sig T
Achievement	5.58	1.98	.28	2.81	.006
Work Experience Type	-11.35	4.00	-.28	-2.84	.006
Gender	-8.52	4.69	-.19	-1.81	.073
Work Exp. Quantity	4.03	2.20	.19	1.83	.071
(Constant)	93.28	11.95		7.80	.000